CLAIMS

What is claimed is:

1. A dosage form comprising

a prodrug of a proton pump inhibitor comprising a biological leaving group bonded to a nitrogen atom of a benzimidazole moiety of said proton pump inhibitor,

wherein said dosage form does not comprise a salt of phosphoric acid,

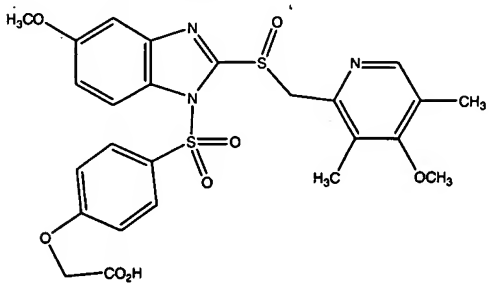
and wherein conversion of said prodrug to said proton pump inhibitor depends upon cleavage of a sulfonyl bond.

2. The dosage form of claim 1 wherein said proton pump inhibitor is selected from the group consisting of omeprazole, esomeprazole, lansoprazole, pantoprazole, and rabeprazole.

3. The dosage form of claim 1 wherein the proton pump inhibitor is omeprazole.

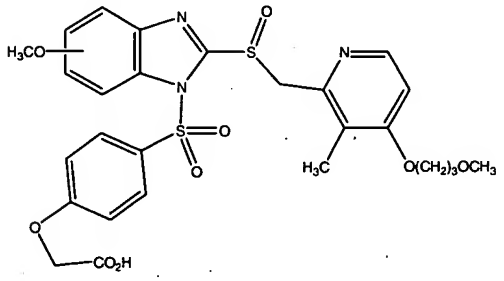
4. The dosage form of claim 1 wherein the biological leaving group comprises an phenyl ring.

5. The dosage form of claim 1 comprising



or a pharmaceutically acceptable salt thereof.

6. The dosage form of claim 1 comprising



or a pharmaceutically acceptable salt thereof.

7. The dosage form of claim 1 which does not comprise a polyvalent anion having a molecular mass of 100 or less.

8. The dosage form of claim 1 which does not comprise a buffer.

9. The dosage form of claim 1 which does not comprise more than 0.1 moles of a polyvalent anion for every 1 mole of said prodrug, wherein said polyvalent anion has an aqueous solubility of 0.1 M or greater.

10. The dosage form of claim 1 which does not comprise a polyvalent anion having an aqueous solubility of 0.1 M or greater.

11. The dosage form of claim 1 which does not comprise a polyvalent anion having an aqueous solubility of 0.01 M or greater.

12. The dosage form of claim 6 which does not comprise an anion having an aqueous solubility of 0.1 M or greater and a molecular mass of 110 or less.

13. The dosage form of claim 5 which does not comprise an anion having an aqueous solubility of 0.01 M or greater and a molecular mass of 110 or less.

14. The dosage form of claim 1 which is a solid.

15. The dosage form of claim 1 which is a liquid.

16. A method of reducing gastric acid secretion comprising administering to a mammal an effective amount of a sulfonyl prodrug of a proton pump inhibitor in a composition suitable for said administration, provided said composition does not comprise a phosphate buffer.

17. The method of claim 16 wherein the proton pump inhibitor is lansoprazole.

18. The method of claim 16 wherein the proton pump inhibitor is esomeprazole.

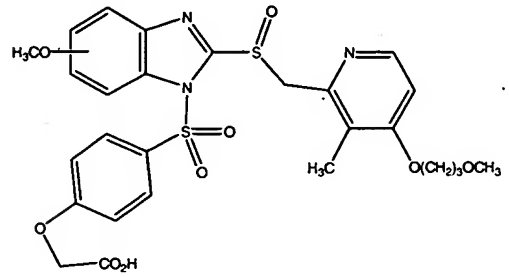
19. The method of claim 16 wherein the proton pump inhibitor is omeprazole.

20. The method of claim 16 wherein the proton pump inhibitor is pantoprazole.

21. The method of claim 16 wherein the proton pump inhibitor is rabeprazole.

22. The method of claim 16 wherein said biological leaving group comprises a phenylsulfonyl group, wherein the sulfur atom is directly bonded to the nitrogen atom of the benzimidazole moiety.

23. The method of claim 16 comprising



or a pharmaceutically acceptable salt thereof.

24. The method of claim 16 wherein said prodrug is administered in a dosage form or a composition which does not comprise a polyvalent anion having a molecular mass of 102 or less.

25. The method of claim 16 wherein said prodrug is administered in a dosage form or a composition which does not comprise a buffer.

26. The method of claim 16 wherein said prodrug is administered in a dosage form or a composition which does not comprise more than 0.05 moles of a polyvalent anion for every 1 mole of said prodrug, wherein said polyvalent anion has an aqueous solubility of 0.15 M or greater.

27. The method of claim 16 wherein said prodrug is administered in a dosage form or a composition which does not comprise a polyvalent anion having an aqueous solubility of 0.2 M or greater.

28. The method of claim 16 wherein said prodrug is administered in a dosage form or a composition which does not comprise a polyvalent anion having an aqueous solubility of 0.02 M or greater.

29. The method of claim 16 wherein said prodrug is administered in a dosage form or a composition which does not comprise an anion having an aqueous solubility of 0.15 M or greater and a molecular mass of 120 or less.

30. The method of claim 19 wherein said prodrug is administered in a dosage form or a composition which does not comprise an anion having an aqueous solubility of 0.015 M or greater and a molecular mass of 120 or less.

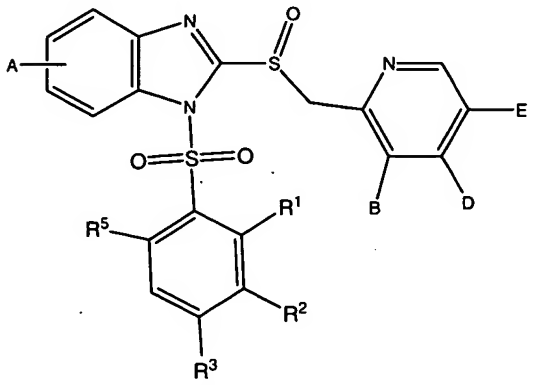
31. A pharmaceutical product comprising

a composition comprising sulfonamide prodrug of a proton pump inhibitor, and

a package for dispensing or storing said prodrug,

wherein said composition does not comprise an anionic buffer.

32. The product of claim 25 comprising



or a pharmaceutically acceptable salt thereof

wherein

A is H, OCH_3, or $OCHF_2$;

B is CH_3 or OCH_3;

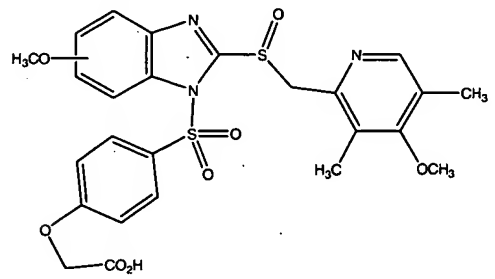
D is OCH_3, OCH_2CF_3, or $O(CH_2)_3OCH_3$;

E is H or CH_3;

R^1, R^2, R^3, and R^5 are independently H, CH_3, CO_2H, CH_2CO_2H, $(CH_2)_2CO_2H$, $CH(CH_3)_2$, $OCH_2C(CH_3)_2CO_2H$, $OCH_2CO_2CH_3$, OCH_2CO_2H, $OCH_2CO_2NH_2$, $OCH_2CONH_2(CH_2)_5CO_2CH_3$, or OCH_3.

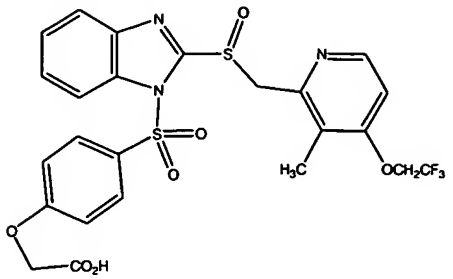
33. The product of claim 32 wherein R^1, R^2, R^3, and R^5 are independently H, CH_3, CO_2H, CH_2CO_2H, $(CH_2)_2CO_2H$, $OCH_2CO_2CH_3$, OCH_2CO_2H, $OCH_2CONH_2(CH_2)_5CO_2CH_3$, or OCH_3.

34. The product of claim 31 comprising



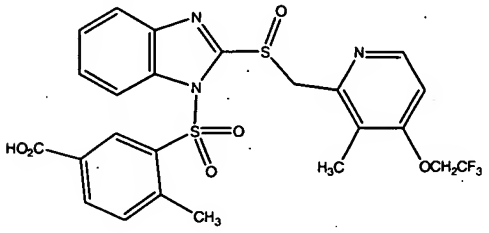
or a pharmaceutically acceptable salt thereof.

35. The product of claim 31 comprising



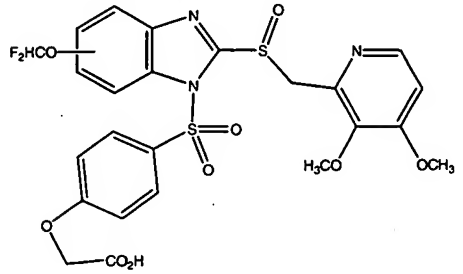
or a pharmaceutically acceptable salt thereof.

36. The product of claim 31 comprising



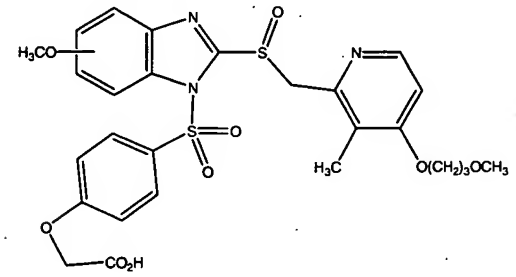
or a pharmaceutically acceptable salt thereof.

37. The product of claim 31 comprising



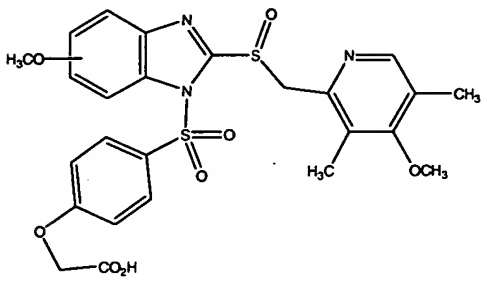
or a pharmaceutically acceptable salt thereof.

38. The product of claim 31 comprising



or a pharmaceutically acceptable salt thereof.

39. The product of claim 31 comprising



or a pharmaceutically acceptable salt thereof.

40. The dosage form of claim 1 comprising a buffer which is not anionic.

41. The dosage form of claim 1 which is a liquid.

42. The dosage form of claim 1 which is a solution.

43. The dosage form of claim 1 which is a suspension or an emulsion.